

APPENDIX E

Great Falls Basin Wilderness Character

Spring Monitoring / Proper Functioning Condition

January-February 2020

Each reference point is a spring within the Great Falls Basin Wilderness Area. Surveys took place from mid-January to early February of 2020. All of the reference points have been surveyed in the past, with exception to a few newly discovered springs. The springs can be categorized as either being inside of the central basin that is the namesake of the wilderness area or in the canyons and washes that surround the basin to the east, north, and south. Spring areas within the basin all feed an ephemeral stream network which flows to Great Falls Canyon and ultimately to the Great Falls, a popular recreation area, at the eastern edge of the wilderness area.

Each reference point is a spring within the Great Falls Basin Wilderness Area. Surveys took place from mid-January to early February of 2020. All of the reference points have been surveyed in the past, with exception to a few newly discovered springs. The springs can be categorized as either being inside of the central basin that is the namesake of the wilderness area or in the canyons and washes that surround the basin to the east, north, and south. Spring areas within the basin all feed an ephemeral stream network which flows to Great Falls Canyon and ultimately to the Great Falls, a popular recreation area, at the eastern edge of the wilderness area.

Non-native species, both plant and animal, pose a threat to the proper function of the riparian condition, upland condition, and natural biotic communities at these reference points. Many non-native plants have become invasive, even monocultures at some sites, posing an increased threat to biodiversity. Wild Burro (*Equus asinus*) also pose a threat by trampling vegetation leading to soil destabilization and expedited erosion. Exclosure fences have been installed at some of these locations outside of the main basin in an attempt to minimize damage by burro and maintain lush riparian habitat that serves as breeding ground for the federally threaten, California state endangered Inyo Californian Towhee. These locations include Christmas Spring, Mumford Spring, Nadeau Spring, North Ruth Spring, Sidehill Spring, and Skull Spring.

Allen Spring: is functioning at risk primarily due to the modern pipeline in place that feeds the riparian area as opposed to a natural upwelling of water. Although it is natural groundwater the spring is still at risk due to its dependence on a man-made structure. Cattail (*Typha latifolia*) puts the natural biotic community at risk as well, however invasion is minimal.

Arrastra Spring: is functioning at risk. The spring's riparian area and upland condition are at risk due to extensive burro trails in and around the spring causing devegetation and soil destabilization. The biotic community appears to be functional; however, a large portion of the upper spring is covered by monocultures of common reed (*Phragmites australis*) and tumble mustard (*Sisymbrium altissimum*).

Austin Spring: is functioning at high risk. The area near Austin Spring experienced a fire relatively recently and the upland condition of the surrounding area is scarred from the burn with

minimal regrowth at the time of survey. The area is at high risk of erosion due to rain and burro activity (A revegetation project is planned for the area). The riparian area of the spring supports a healthy population of desert baccharis (*Baccharis sergiloides*) however, there was also a large portion of the spring dominated by common reed (*Phragmites australis*) which puts the native plant community at risk.

Bainter Spring: is functioning at risk. The riparian area supports a healthy population of plants, which provide sufficient erosion control. The upland condition appears to be in properly functioning condition as adequate vegetation provides erosion control and there is minimal burro disturbance around the spring itself due to the steepness of the slope where the spring is found. The biotic community is at risk as a large portion of the spring site is invaded by common reed (*Phragmites australis*) which outcompetes native plants. The spring site was mostly dry soil with some wet patches throughout. A small historic pipeline sits below the spring on the canyon floor, which releases enough water for a small pool to form. There is evidence that wildlife utilizes this pool, but it could have a detrimental effect on the amount of water within the spring itself.

Christmas Spring: is functioning at risk. The spring's riparian area appears relatively healthy, however, die off of desert baccharis (*Baccharis sergiloides*) farther from the artesian spring is indicative of potential changes to the water table and an increased risk of erosion. The upland plant community was heavily impacted by burro activity leaving large areas of bare ground susceptible to erosion. Nevertheless, the biotic community appeared to be in proper functioning order.

Elliot Spring: is in proper functioning condition. The spring's riparian area consists of a large patch of willow (*Salix* spp.) and desert baccharis (*Baccharis sergiloides*) which provide erosion control. The spring is surrounded entirely by large granite formations, making upland condition a negligible factor in the spring's overall health. The biotic community is in proper functioning condition, except for a small amount of invasive cheatgrass (*Bromus tectorum*).

Great Falls: Spring East is functioning at risk. Upland condition is at risk due to soil destabilization by burros that come down the wash sides to drink from the water source. The riparian area condition appears to be in proper function as a dense population of willow (*Salix* spp.) provides adequate erosion protection. The biotic community is also in good condition, only small amounts of cheatgrass (*Bromus tectorum*) were seen.

Great Falls: Spring North is functioning at risk. The riparian area is in good condition with minimal disturbance by burros and dense soil stabilizing vegetation. However, the burros have more of a presence around the edges of spring, likely attracted to the stream and pool created at the spring site. There is evidence of higher flow rates in the past but at the time of our survey the stream was not flowing, and the small pool was stagnant. The biotic community appeared to be functioning properly, consisting primarily of native plants, except for a negligible amount of cheatgrass (*Bromus tectorum*) around the perimeter.

Great Falls Spring Northwest: is functioning at high risk. The spring had not been identified prior to the 2020 surveys. North of the spring is a wide rocky wash, below opens into the wash that comes from the Fork Springs (North, Middle, and South Springs) with mostly bare alkali

soil in between. No water was present; however, the spring did support a dense population of willow (*Salix* spp.) and desert baccharis (*Baccharis sergiloides*). There was common reed (*Phragmites australis*) present on a large portion of spring. Large swaths of desert baccharis (*Baccharis sergiloides*) appeared to have died off on the western edge of the spring, suggesting changes to the water table.

Great Falls Spring South: is functioning at risk. The spring sits within a wash that burros climb into to get to the system of pools created by the spring. Their activity greatly affects the upland condition of the surrounding area. The riparian condition appears healthy with dense vegetation. Cheatgrass (*Bromus tectorum*) is present but overall the plant community appears healthy.

Great Falls Spring West 1: is in proper functioning condition. Spring was dry but vegetation in the riparian area remained vigorous. Burro trails negatively affect upland condition, but do not appear very well used. Cheatgrass (*Bromus tectorum*) was present but this appeared to have minimal effect on the overall biotic community.

Great Falls Spring West 2: is in proper functioning condition. Upland and riparian areas appear to be in good condition. Minimal cheatgrass (*Bromus tectorum*) was observed nearby, not affecting the over biotic community health. Flowing water attracted wildlife to the spring at the time of the survey including several rock wrens (*Salpinctes obsoletus*).

Middle Fork Spring: is functioning at risk. This spring had not been identified prior to the 2020 surveys. Vegetation die-off near the north (uphill) side of the spring site possibly due to changes in the water table. The spring supports a small channel and pool which appears to attract a large number of burros, leading to the degradation of the riparian and upland condition. The native biotic community consisted largely of willow (*Salix* spp.) and desert baccharis (*Baccharis sergiloides*), however, a patch of common reed (*Phragmites australis*) did take up a sizable portion of the spring's footprint.

Mumford Spring: is functioning at risk. The spring lacks any surface water at the most recent survey; however, it supports a large and healthy riparian area. This spring has an enclosure fence around it that is not functioning properly as burros appeared to have entered the spring site. A majority of the riparian area remained untrampled, most of the burro damage was on the eastern portion of the enclosure. Cattail (*Typha latifolia*) covers a small portion of the spring site and does not seem to be of detriment to the overall plant community. The upland condition has been negatively affected by burro presence, a large hole had been dug outside of the enclosure fence down to the water table, evidence that burro had come there to drink. Enclosure fence was repaired in February 2020 to mitigate burro entry into spring site.

Nadeau Spring: is functioning at risk. Riparian area and biotic community are functioning with dense vegetation, which is only degraded by the extensive patch of common reed (*Phragmites australis*) at the center of the spring and a small patch of cattail (*Typha latifolia*) to the north. There is also a patch of dying desert baccharis (*Baccharis sergiloides*) on the east side which may indicate that either the phragmites and cattail are consuming too much of the water or there have been changes to the water table. Upland condition is degraded by the burro trails which surround the enclosure fence.

No Name Spring: is functioning at risk. The biotic community is at risk as the spring site is dominated by common reed (*Phragmites australis*). The upland condition is healthy as the steep slopes are inaccessible to burro and covered with native plants.

North Fork Spring: is in proper functioning condition. It has a very healthy biotic community which supports a dense willow (*Salix* spp.) stand and a riparian area with flowing water which appears down the wash away from the spring toward Middle and South Fork. Upland condition is protected by steep rock faces and boulders on all four sides which prevents burro access.

North Ruth Spring: is functioning at risk. Its upland condition is highly threatened by burro trails and evidence of OHV and other human recreation nearby. The enclosure fence was non-functioning at the time of surveying as it had been cut for human entry. Enclosure fence was repaired in February 2020. Evidence of burros and human recreation is present in the riparian area, putting it at risk.

Orchard Spring: is functioning at risk. Its upland condition is degraded by burro trails, but its riparian condition appears healthy. The spring supports a large population of willow (*Salix* spp.) with hydric soils on the southeastern end.

Pothole Spring: is functioning at risk. It has a healthy biotic community which supports baccharis species and rubber rabbitbrush (*Ericameria nauseosa*) although it appeared to be dry at the most recent survey. Its upland condition is heavily degraded by well-worn burro trails to the north and south.

Pothole Spring West: is functioning at risk. It does not have any standing water and its upland condition and biotic community are highly degraded by an extensive burro trail network and a high degree of cheatgrass (*Bromus tectorum*) invasion.

Rattlesnake Spring East: is functioning at risk. Its upland and riparian condition are threatened by several burro trails around and through the spring.

Rattlesnake Spring West: is in proper functioning condition. The spring is located up against a cliff on the west side which protects its upland condition and also prevents burros from accessing the riparian area. There is running water seeping out of the cliff which supports a healthy population of willow (*Salix* spp.).

Sidehill Spring: is functioning at slight risk. The enclosure fence keeps the burros out of the spring itself, but it does cause them to trample a path around the perimeter. The biotic community is also threatened by a monoculture stand of common reed (*Phragmites australis*) which dominates the spring.

Skull Spring: is functioning at risk. The spring sits in a large wash, with very poor upland condition. The western uphill side is extremely eroded with no vegetation whatsoever and surrounded by a large patch of cheatgrass (*Bromus tectorum*). There is also burro activity nearby but the enclosure fence appears effective. Riparian condition appears relatively healthy and supports a small population of young willows (*Salix* spp.) as well as a long pool of standing water at the center of the spring area supporting some aquatic insects.

South Fork Spring: is in proper functioning condition. The riparian area is very healthy and supports a dense willow (*Salix* spp.) patch. Upland condition is slightly threatened by some burro trails nearby, but they do not appear well used.

Twin Spring North: is functioning at risk. The riparian area supports a healthy willow (*Salix* spp) population. The biotic community is threatened by a large population of common reed (*Phragmites australis*) while the upland condition is threatened by the burro trails and a patch of bare ground on the southern edge of the spring which appears susceptible to erosion.

Twin Spring South: is functioning at risk. Upland condition is threatened by the network of burro trails surrounding the spring and a patch of bare ground to the north of the spring which is susceptible to erosion. The riparian area supports a healthy population of willow (*Salix* spp.) with cattail (*Typha latifolia*) growing in a hydric soil near the water source. The only threats to the biotic community and riparian condition are small patches of cheatgrass (*Bromus tectorum*) around the edges and a patch of dead desert baccharis (*Baccharis sergiloides*) on the west side of the spring which may or may not indicate a recent change in the hydrology.

Willow Spring: is functioning at risk. Surface water was present, welling up on the eastern end of the spring. The spring supports a healthy riparian population of willow (*Salix* spp.) with atriplex species and rubber rabbitbrush (*Ericameria nauseosa*) at the edges. One black walnut (*Juglans negra*) is also growing within the spring. The upland condition is relatively poor due to burro trails which surround the spring and several of which cut through its riparian area. Upland condition is also affected by the ruins of a stone building constructed roughly a century ago, though in the present day it is primarily scattered debris and pipeline.

Willow Spring East: is functioning properly. The spring appeared to be dry at the time of survey, however it was supporting dense vegetation. The upland and riparian conditions appear to be properly functioning, however, some common reed (*Phragmites australis*) was present but in such small amounts that it does not appear to be a threat to the biotic community of the spring. The spring had not been previously identified prior to our survey.

